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EXAMINER

GAGLIARDI, ALBERT J

ART UNIT PAPER NUMBER

2878

DATE MAILED: 03/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/827,013

Applicant(s)

EMPEDOCLES ET AL.

Examiner

Albert J. Gagliardi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 16 and 82 are objected to because of the following informalities:

In claim 16, label should be "labels".

Claim 82 should be dependent on claim 81, not 80.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).
4. Claims 65-66 are rejected under 35 U.S.C. 102(e) as being anticipated by Bawendi *et al.* (US 6,326,144 B1).

Regarding claim 65, *Bawendi* discloses a method of sensing a plurality of intermingled labels comprising energizing the labels to generate signals (col. 3, lines 44-45); identifying a first

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label by measuring a first discrete wavelength from a plurality of discrete wavelengths in a first range (col. 3, lines 44-45); identifying a second label by measuring a second discrete wavelength from a plurality of discrete wavelengths in a second range different from the first (col. 3, lines 49-59).

Regarding claim 66, *Bawendi* discloses a step of adding a plurality of labels to a fluid at an associated plurality of process steps so that the labels indicate the process steps performed to the fluid (see for example col. 3, lines 23-30; col. 6, lines 34-54; col. 7, lines 51-65; and col. 11, line 66 to col. 12, line 65)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 10-12, 15-17 @@@ are rejected under 35 U.S.C. 103(a) as being unpatentable over Libbey, III *et al.* (US 6,384,409 B1) in view of Oshima *et al.* (US 5,932,139).

Regarding claim 1, *Libbey* discloses an identification system (**Fig. 1**) comprising a plurality of identifiable elements (col. 1, lines 17-30); a plurality of labels, each label associated with a unique or non-unique identifiable element, the labels generating spectra in response to excitation energy (col. 1, lines 31-39; col. 4, lines 39-42; col. 2, line 66 to col. 3, line 5); and an analyzer for identifying the elements from the spectra of the associated labels (col. 2, lines 12-23).

Regarding the use of reference markers and other markers wherein the analyzer calibrates the spectra using reference signals generated by the reference markers, it is noted that while *Libbey* does suggest the use of materials including at least two compounds providing different wavelengths to provide sufficient contrast to be read (seemingly suggesting the use of reference markers and other markers and some sort of comparison/calibration of the signals by the analyzer), the examiner notes that regardless of such disclosure, the use of reference markers and other markers as part of a coded label wherein an analyzer calibrates the spectra using reference signals generated by the reference markers is well known in the art. *Oshima*, for example, discloses (**Fig. 45-47**) a fluorescent coding system wherein the labels (89) include both reference markers (91) and other markers (90) and wherein an analyzer further calibrates the spectra using reference signals generated by the reference markers (col. 23, line 65 to col. 24, lines 5-12; and col. 59, line 62 to col. 60, line 28). *Oshima* teaches, as is otherwise well known, that the use of reference markers allows for increased accuracy (col. 24, lines 5-12). As such, it would have been obvious to modify (if not already inherent) the system disclosed by *Libbey* to include reference markers for calibrating the analyzer so as to allow for increased accuracy.

Regarding claims 10 and 11, *Libbey* discloses that depending on the needs of the particular application, at least some of the reference signals of the labels (suggestion of *Oshima*) may have common or different reference wavelengths (col. 3, lines 59-65).

Regarding claim 12, absent some degree of criticality, the particular reference wavelength criteria, such as being a shortest or longest wavelength of the spectra would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claims 15-16, absent some degree of criticality, the number of labels associated with identifiable elements is a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claims 17-18, *Libbey* discloses the use of a tangible media embodying a machine readable code, the code comprising a listing of distinguishable labels (inherent or obvious aspect of the system in view of the computer processor (see generally Fig. 1), the code further comprising a listing of identifiable elements and a correlation between each label and an associated identifiable element (inherent or obvious in view of the disclosure of using the system for tracking or verification of the identifiable elements (col. 1, lines 17-30).

Regarding claim 19, *Libbey* discloses that the element may be at least an article of manufacture (col. 1, lines 27).

Regarding claim 20, the method of claim 20 is suggested by the system of claim 1 and is rejected accordingly.

Regarding claim 21, the library of elements of claim 21 is suggested by the system of claim 1 and is rejected accordingly.

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Regarding claims 36-40, the library of elements is suggested by the system of claims 15-19 and is rejected accordingly.

Regarding claim 41, the method of claim 41 is suggested by the system of claim 1 and is rejected accordingly.

Regarding claim 72, the inventory label generating method of claim 72 is suggested by the system of claim 1, or is an obvious variation thereof that would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application, and is rejected accordingly.

8. Claims 2-4 @@@ are rejected under 35 U.S.C. 103(a) as being unpatentable over *Libbey* and *Oshima* as applied above, and further in view of McGrew (US 6,236,104).

Regarding claim 2, *Libbey* does not specifically identify the label as comprising nanocrystals.

Regarding the use of nanocrystals, *Libbey* discloses that the label can comprise a material such as fluorescent ink (col. 3, lines 1-5). McGrew discloses that it is well known and advantageous to utilize nanocrystals (quantum dots) in such fluorescent inks to allow for the production of a distinctive fluorescent spectrum. As such it would have been an obvious design choice to modify the label disclosed by *Libbey* to include semiconductor nanocrystals in view of the known advantageous use of such crystals for producing fluorescent inks.

Regarding claims 3 and 4, in the system suggested by *Libbey* as modified in view of *Oshima*, and *McGrew*, the reference markers would comprise one or more reference semiconductor nanocrystals generating a reference signal at a reference wavelength with a reference intensity.

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Regarding claim 22-23, the library of elements is suggested by the system of claims 2-4, or is an obvious variation thereof that would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application, and is rejected accordingly.

Regarding claims 42, the method of claim 42 is suggested by the system of claim 2, or is an obvious variation thereof that would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application, and is rejected accordingly.

Regarding claim 73, the inventory label generating method of claim 72 is suggested by the system of claim 2, or is an obvious variation thereof that would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application, and is rejected accordingly.

9. Claims 5-9 @@@ are rejected under 35 U.S.C. 103(a) as being unpatentable over *Libbey*, *Oshima*, and *McGrew* as applied above, and further in view of Shaw (US 3,663,813).

Regarding claim 5, in the system suggested by *Libbey* as modified in view of *Oshima*, and *McGrew*, the other markers would comprise other semiconductor nanocrystals generating other signals at other wavelengths.

Libbey, *Oshima*, and *McGrew* do not specifically disclose that the other signals have other intensities.

Regarding the use of other wavelengths and other intensities, *Shaw* discloses a spectral coding system wherein the label includes data including both different wavelengths and different intensities (see generally Fig. 2). *Shaw* teaches that using different wavelengths and different

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intensities allows for an increased number of uniquely identifiable codes (col. 1, lines 5-21). *Shaw* also teaches that such codes may be used as an alternative to and/or in addition to other shape-based coding systems.

As such it would have been obvious to a person of ordinary skill in the art to further modify system suggested by *Libbey*, *Oshima*, and *McGrew* to further include other markers with different intensities so as to allows for an increased number of uniquely identifiable codes or to otherwise compliment the suggested coding system.

Regarding claim 6, the system suggested by *Libbey*, *Oshima*, *McGrew*, and *Shaw* (see explanation regarding claim 5 above) the other markers comprise code signal markers which generate code signals different than the reference signals, the spectra comprising the marker signals and the code signals (see generally Fig. 45 of *Oshima*) and wherein for at least one label, the analyzer quantifies the code signals emitted by the code signal markers by comparison of the code signals with the reference signal and by selecting characteristics of the code signals from among a plurality of discrete predetermined signal characteristics such as signal duration (*Oshima*) or wavelength and intensity (as suggested by *Shaw*).

Regarding claim 7, in the system suggested by *Libbey*, *Oshima*, *McGrew*, and *Shaw* the reference signal has a reference intensity (see generally Fig. 45 of *Oshima*) and the code signals have code signal intensities (modification suggested by *Shaw*), the analyzer discretely quantifying the code signal intensities by comparison to the reference intensity of the label.

Regarding claim 8, *Shaw* suggests that the code signal intensities define discrete ratios (see generally Fig. 2).

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Regarding claim 9, absent some degree of criticality, the particular reference intensity criteria, such as highest or lowest intensity for example, would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Regarding claim 13, in the system suggested by *Libbey*, *Oshima*, *McGrew*, and *Shaw* (see explanation regarding claims 5 and 6 above) the reference signals have reference wavelengths (*Oshima*), and the other signals have other wavelengths (*Shaw*), the other wavelengths being discretely quantifiable by reference to the reference wavelength.

Regarding claim 14, in the system suggested by *Libbey*, *Oshima*, *McGrew*, and *Shaw* (see explanation regarding claims 5 and 6 above) the spectrum of a first label comprises signals having a plurality of wavelengths, and a spectrum of a second label having the plurality of wavelengths (suggestion of *Shaw*), wherein the analyzer calibrates spectra intensities of the first and second labels based on the reference signals to distinguish the first and second labels.

Regarding claims 24-35, the library of elements is suggested by the system of claims 5-14 and is rejected accordingly.

Regarding claim 43-54, the method of claims 43-45 is suggested by the system of claim 1, 5 and 6, or are obvious variations thereof that would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application and is rejected accordingly.

Regarding claim 55-64, the method of claims 55-64 is suggested by the system of claim 1, 5-6, 10-11 and 14, or are obvious variations thereof that would have been a matter of routine

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design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application and is rejected accordingly.

Regarding claims 67-71, the inventory system of claim 67-71 is suggested by the system of claims 1-2, 5-6 and 17, or are obvious variations thereof that would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application, and is rejected accordingly.

Regarding claims 74-80, the inventory label generating system of claims 74-80 is suggested by the system of claims 1-2, 5-6, 10-11 and 17, or are obvious variations thereof that would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application, and is rejected accordingly.

Regarding claims 81-82 (as best understood), method of identifying a plurality of identifiable elements of claims 81-82 is suggested by the system of claims 1-2, 5-6, or are obvious variations thereof that would have been a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application, and is rejected accordingly.

Conclusion

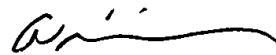
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (703) 305-0417. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Albert J. Gagliardi
Examiner
Art Unit 2878

AJG
February 22, 2003